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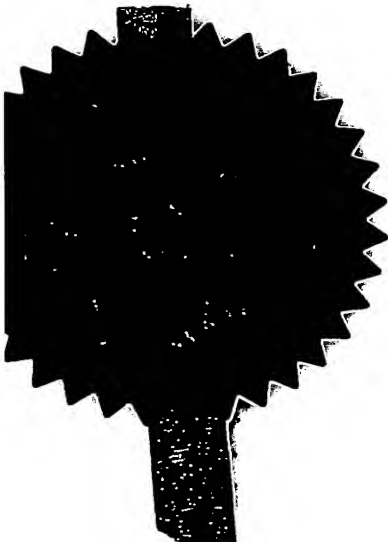
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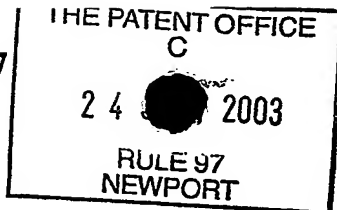


R. Mahoney

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1. Your reference

5/CR/12993.GB

2. Patent application number

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0301822.3

20JAN03 E700175-1 002915
P01/7700 0.00-0301822.3

3. Full name, address and postcode of the or of each applicant (underline all surnames)

Michael Man-Cheung Tsang
9 William Drive
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Patents ADP number (if you know it)

08381006001

If the applicant is a corporate body, give the country/state of its incorporation

4. Title of the invention

Fitting Protector

5. Name of your agent (if you have one)

Sanderson & Co.

"Address for service" in the United Kingdom to which all correspondence should be sent (including postcode)

34 East Stockwell Street
Colchester
Essex
CO1 1ST

Patents ADP number (if you know it)

1446001 ✓

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number
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Date of filing
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UK

02 10830.6

11/05/02

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Number of earlier application

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No

- a) any applicant named in part 3 is not an inventor, or
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Patents Form 1/77

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Description 10

Claim(s) 3

Abstract

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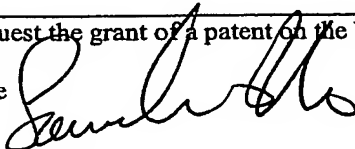
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11.

Sanderson & Co.
Agents for the applicant

I/We request the grant of a patent on the basis of this application.

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Date 23/01/2003

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Name and daytime telephone number of person to contact in the United Kingdom

James Sanderson 01206 571187

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Fitting Protector

The present invention relates to a fitting protector for use in a ceiling void. The fitting protector finds particular use in preventing insulating or inflammable materials from coming into contact with recessed light fittings.

5 A variety of fittings, such as recessed light fittings, can extend into ceiling or roof voids, but must not come into contact with material such as insulation that is placed in those voids. Recessed light fittings can in normal operation become very hot and contact between such hot fittings and insulating material (or other inflammable material) is dangerous as it can lead
10 to fire or damage.

It is therefore desirable to provide some form of guard or shield that prevents contact between the fittings and the insulation material. Some attempts have been made to address this problem, but these prior efforts have failed to produce a simple cheap effective solution. Worse still, the
15 previous efforts have required complicated or time-consuming fitting which made them unsuitable. In contrast the present invention aims to provide a simple mechanism by which fittings can be protected from contact with insulation material, which mechanism is simple and quick to install, is stable once installed, and which permits a proper depth of insulation to be fitted
20 close to lights and other such fittings. It further aims to provide a fitting protector that may be adjusted to fit around a variety of differently sized-fittings.

Therefore according to the present invention there is provided a fitting protector for use with a fitting that extends through ceiling material into a void
25 therebehind, comprising a shell adapted for location within the void around

that part of the fitting which extends into the void, and locating means adapted to co-operate with a mechanism by which the fitting is held in place, so as to hold the shell in place around the fitting such that the shell prevents insulating material in the void coming into contact with the fitting.

5 It is preferred that the locating means includes a tab that extends from the shell and in use lies against the ceiling material and is engaged by said mechanism. More than one tab may be used, and the or each tab may
~~extend inwardly from the lower edge of the shell toward the fitting. If more~~
than one tab is used, the tab may be positioned at suitably spaced locations
10 such that once each tab is fixed down the stability of the shell is enhanced. The tab may extend across the lower end of the shell with each end of the tab being fixed to a different region of the tab.

 The mechanism by which the fitting is held in place may comprise fixtures such as screws that are connected to the ceiling material, and the tab
15 may be adapted for connection to the ceiling material by the same screw or screws. However, many recessed fittings, especially recessed light fittings are attached to the ceiling material by spring-mounted arms that bear on the rear face of the ceiling material. These pull the fitting upwards until suitable abutments on the fitting come into contact with the front face of the ceiling.
20 No other fixing is needed because the tension in the spring clamps the fitting in place. When used in conjunction with such fittings the tab or tabs may be adapted to locate between the ceiling material and the spring-mounted arms, such that the protector is held in place.

 The shell may be a complete construction that is placed over the fitting.
25 ~~Alternatively, the shell may comprise two relatively separable parts to permit~~

location of the shell around a fitting. Whilst the two parts of the shell may take a multitude of suitable forms, it is preferred that each of the two parts is generally channel-shaped. The channel-shaped parts may be generally symmetrical halves of a shell, or may be different but complementary in shape.

The two parts of a shell need to be connected together, and this can be done in several ways. Each channel-shaped part can have a pair of flanges and the flanges of one part can inter-engage with the flanges of the other part. This inter-engagement can be such that the two parts are relatively adjustable so that the volume defined by the shell is similarly adjustable. Alternatively, the inter-engagement can produce a fixed size shell.

The outer edges of the flanges of one channel-shaped part may be adapted such that they can be received in suitably adapted co-operating means provided on the flanges of the other channel-shaped part. Alternatively the flanges of one channel-shaped part may overlie the flanges of the other channel-shaped part and may be connected thereto by clips. Such clips may be separate from the shell and be connected thereto only when joining the overlying flanges of the two parts. In a further alternative embodiment, the flanges of one channel-shaped part may be adapted to engage the flanges of the other channel-shaped part by sliding inter-engagement in a lengthwise direction.

The two parts of the shell may be hingedly connected together so that relative separation of the two parts involves pivoting about the hinge. The hinge may be provided between the outer edges of two flanges of separate parts, with the outer edges of the other flanges being brought together or

separated by relative hinging of the two parts of the shell. Means may be provided to connect the edges of the unhinged flanges together as required.

The shell may take any suitable overall shape, but it has been found that for ease of construction the shell may form a tube of generally square or circular cross section, which has an open lower end that lies against the ceiling material and an open upper end. To form such tubular shells, each channel-shaped part has a generally rectangular or semi-circular cross-section as appropriate.

As mentioned above, the upper end of the shell may be open, and this permits heat generated by the fitting to be dissipated, as well as permitting the entry of wiring and other services. In most cases the height of the shell will be such that the top of any insulation layer is below the top of the shell. However, in some circumstances such as when deeper insulation is to be used, it may be desirable to close the upper end of the shell. This upper end may be closed by providing on one or both parts a suitable screen or screens that extend across the channel-shaped parts between the flanges thereof. These screens or indeed the shell itself can be formed from solid material or from mesh, which allows heat transmission from within the shell.

The main intended purpose of the protectors according to the present invention is to prevent insulation coming too close to recessed light fittings, which can become hot during use. Therefore it is preferred that the protector is mounted around such a light fitting and that it is particularly adapted for this purpose.

When the fitting around which the present invention is arranged is an electrical one, it is desirable to provide additional enhancements to facilitate

correct connection of the fitting and any associated component. If the fitting is a light, there might easily be a transformer that converts the voltage of the electrical supply. To this end the shell may be adapted to support a transformer or other component connected to the fitting. This would both
5 conveniently support the transformer or other component, and allow for easier fixing.

Support of the transformer might be achieved by providing a shell wherein the upper edge thereof is cut to form two or more tongues that may be bent out of the plane of the shell to allow engagement thereto of a
10 transformer or other component. The transformer might be engaged by passing the tongues through apertures on the transformer (such as might normally be used to fix the transformer down), or the transformer might be placed between the angled tongues and the remaining portion of the shell.

Instead of forming tongues by cuts in the shell, a similar result can be
15 achieved by the use of prongs attached to the shell which in normal use lie substantially parallel to and against the shell, but which may be selectively bent away therefrom to permit the support of a transformer or other component. Alternatively pegs might be provided to engage with the shell such that the transformer or other component may be located on the pegs. In
20 order that it may be better understood, but by way of example only, the present invention will now be described with reference to various different embodiments shown in the accompanying drawings, in which:

Figure 1 is a perspective view of a first embodiment of the invention;

Figure 2 is a side elevation of the embodiment of Figure 1 connected

25 to the upper side of a ceiling;

Figure 3 is a plan view of the embodiment of Figures 1 and 2 showing the light fitting engaging the tabs;

Figure 4 is a view similar to that shown in Figure 1 but of a slightly different second embodiment;

5 **Figure 5** is a view similar to Figure 2, but showing the second embodiment of protector in use;

Figure 6 is a plan view of the second embodiment of Figures 4 and 5 showing the light fitting engaging the tabs;

Figure 7 is a partial view of a third embodiment of protector which is
10 provided with means to support a transformer;

Figure 8 is similar view to that shown in Figure 7 of a fourth embodiment of protector provided with an alternative means of supporting a transformer;

Figure 9 is again a similar view to Figures 7 and 8 of a fifth
15 embodiment of protector with a further alternative means of supporting a transformer; and

Figure 10 is a cross section of the third embodiment shown in Figure 7 mounted in a roof space around a light fitting.

Referring initially to Figure 1 there is shown a first embodiment of fitting
20 protector generally indicated 10. The protector 10 comprises a first part 11 and a second part 12, both of which are generally square channel-shaped. The channel-shaped first part 11 comprises a web 14 and a pair of opposed flanges 15, 16 that extend perpendicular therefrom, and the second part 12 similarly comprises a web 17 and opposed flanges 18, 19. Slots 20 are
25 formed on the edges of the flanges 15 and 19, and these are adapted to...

receive the outer edges 21 of the flanges 15, 16 of the first part 11 so as to connect the two parts.

The distance between the flanges 15, 16 of the first part 11 is slightly greater than the distance between the flanges 18, 19 of the second part 12.

5 This not only aids the connection of the outer edges 21 into the slots 20, but allows the second part 12 to be located within the first part 11 for storage.

The second part 12, if rotated by 180°, will locate between the flanges 15, 16 of the first part 11, thus reducing the space needed for transport and storage of the unused device.

10 The second part 12 has, connected to its lower edge 23, a pair of opposed tabs 25, 26, which extend inwardly from the flanges 18, 19 and are approximately perpendicular thereto. The protector is shown in its normal orientation, with the lower end being placed against the ceiling material (not shown in Figure 1) and the upper end being open to permit the escape of heat
15 from the light fitting that is being protected, and amongst other things the maintenance of the fitting.

In use, as is best shown in Figure 2, the two parts 11, 12 of the protector 10 are located around a fitting 30 and by locating the outer edges 21 in the slots 20, the two parts are fitted together to define an insulation free
20 area around the light fitting 20. The protector is located on the upper side of a sheet of ceiling material 31, which is connected to ceiling supports 32, and through which the fitting 30 extends. Insulation material 33 is packed around the protector to provide efficient insulation, without causing danger by coming into contact with the hot light fitting 30.

The light fitting is held in place in the ceiling material 31 by spring arms 34 that bear down on the upper side of the ceiling material 31 and pull the outer face 35 of the fitting 30 into abutment with the lower side of the ceiling material 31. As can best be seen in Figure 3 (which is somewhat simplified as compared to Figure 2) the spring arms 34 bear on the tabs 25, 26 and clamp them to the ceiling material 31 thereby holding the protector 10 in place.

The light fitting 30 is connected to a power supply by a cable 36, which passes out of the protector 10 through the open top thereof. The two-part construction allows the protector 10 to be fitted around the light fitting after it has been wired in and before the insulation material 33 has been laid.

A second embodiment of protector, generally indicated 40 is shown in Figures 4 to 6. This embodiment is very similar to that shown in Figures 1 to 3, save in that the mechanism by which the two parts are joined is different. Where possible like reference numerals have been used to refer to like parts.

In the second embodiment (Figures 4 to 6) the first part 41 is slightly wider than the second part 42 and the outer edges 21 of the first part 41 are adapted to overlie the outer edges 43 of the second part 42. The second part 42 is not provided with slots 20 as in the first embodiment, but in all other respects is the same. Elongate metal clips 44 are passed over the regions of the first and second parts which overlie each other, so as to fix them together. Such clips can be normally attached to one or other of the parts, or may be separate and connected thereto as required. In all other respects, as can be seen from Figure 5 and 6, the second embodiment operates in exactly the same way as the first embodiment.

As an alternative to having first and second parts of different widths, and connecting together by clips or other fasteners, it would be possible to have two parts that could be releasably engaged with a resilience fit. The flanges of the first part could be adapted to allow the location therebetween of the flanges of the second part (or indeed vice versa) with the natural resistance between the flanges being sufficient to resist relative movement in normal use.

The degree by which the first part 41 overlies the second part 42 can be varied, and therefore the volume defined by the shell of the protector 40 can also be controlled. This allows the protector to be fitted to a variety of different fittings, whilst allowing the appropriate separation between light fitting and insulation to be maintained.

Figures 7, 8 and 9 show the upper regions of respectively third, fourth and fifth embodiments of protectors according to the present invention. Each of these embodiments are similar to the second embodiment shown in Figure 4. The embodiments differ in that each are provided with differing means of supporting a transformer that is connected to the light fitting. In Figure 7 tongues 50, 51 are formed in the upper edge of the shell by cutting two parallel vertical incisions. These tongues can be bent outwardly with respect to the parts of the shell such that a transformer may be located thereon (see Figure 9).

Figure 8 shows an alternative embodiment wherein elongate pegs 52, 53 are connected to the shell by insertion into suitable apertures therein. Again a transformer, or indeed another component, may either be rested thereon or engaged therewith as shown in Figure 9.

In Figure 9 support means 54, 55 are connected to the shell. These each comprise a plate 56 that is fixed for example by welding to the shell, and a prong 57 extending therefrom. The prongs 57 can be bent out of the plane of the shell, such that a transformer 58 may be located thereon. One
5 convenient method of locating the transformer 58 is to provide prongs 57 that may be bent to a position whereat they correspond to the placing of fixing
holes 59 on the transformer 58. The transformer 58 can be placed on the prongs 57 simply by engaging the prongs 57 in the fixing holes 59 and
allowing the transformer to slide under gravity to the bottom of the prongs 57
10 in abutment with the shell.

Figure 10 shows a cross section of the third embodiment of protector in use. The protector 60 is held in place around the light fitting 30 and against the rear of the ceiling material 31 by the spring arms 34 of the light fitting 30. Insulation material 33 is packed around the protector 60 between the supports
15 32. The transformer 58 is located on the outwardly bent tongues 50, 51 (only one of which is visible) and is connected to the light fitting 30 by wires 61. The wires 61 might pass out through an open upper end of the protector, or as in this case pass through a special aperture in the shell. The transformer 58 is connected to the main supply through further wires 62 and a junction box
20 63.

The protector may be made from a variety of suitable materials, however sheet metal such as steel has been found to be particularly well suited, both due to its strength and rigidity as well as its ease of handling during manufacture. Metal mesh is also useful. Fire retardant materials or
25 coatings may be also be used.

Claims

1. A fitting protector for use with a fitting that extends through ceiling
5 material into a void therebehind, comprising a shell adapted for location within
the void around that part of the fitting which extends into the void, and locating
means adapted to co-operate with a mechanism by which the fitting is held in
place, so as to hold the shell in place around the fitting such that the shell
prevents insulating material in the void coming into contact with the fitting.
- 10 2. A fitting protector as claimed in claim 1, wherein the locating means
includes a tab that extends from the shell and in use lies against the ceiling
material and is engaged by said mechanism.
3. A fitting protector as claimed in claim 2, wherein the locating means
includes two or more tabs.
- 15 4. A fitting protector as claimed in claim 2 or claim 3, wherein the or each
tab extends inwardly from a lower edge of the shell at right angles thereto.
5. A fitting protector as claimed in any of claim 2 to claim 4, wherein one
edge of the tab is connected to one region of the shell and another edge of
the tab is connected to a different region of the shell.
- 20 6. A fitting protector as claimed in any of the preceding claims, wherein
the shell comprises two relatively separable parts to permit location of the
shell around a fitting.
7. A fitting protector as claimed in claim 6, wherein each of the two parts
is generally channel-shaped.

8. A fitting protector as claimed in claim 7, wherein each channel-shaped part has a pair of flanges and the flanges of one part inter-engage with the flanges of the other part.

9. A fitting protector as claimed in claim 8, wherein the connection
5 between the two parts is adjustable such that the volume defined by the shell is adjustable.

10. A fitting protector as claimed in claim 8, wherein the outer edges of the flanges of one channel-shaped part are received in suitable adapted co-operating means provided on the flanges of the other channel-shaped part.

10 11. A fitting protector as claimed in claim 8, wherein the flanges of one channel-shaped part overlie the flanges of the other channel-shaped part and are connected thereto.

12. A fitting protector as claimed in claim 11, wherein the two parts are connected together using clips that pass over the flanges in the region of
15 overlap between the flanges.

13. A fitting protector as claimed in claim 8, wherein the flanges of one part are a tight sliding fit between the flanges of the other part.

14. A fitting protector as claimed in claim 8, wherein the two parts are hingedly connected together.

20 15. A fitting protector as claimed in any of claims 8 to 14, wherein the shell is generally rectangular and each channel-shaped part has a generally rectangular cross-section.

16. A fitting protector as claimed in any of the preceding claims, wherein the shell is closed at its end furthest from the ceiling material.

17. A fitting protector as claimed in any of the preceding claims, wherein the fitting around which the fitting protector is mounted is a light fitting.

18. A fitting protector as claimed in any of the preceding claims, wherein the shell is adapted to support a transformer or other electrical component
5 connected to the fitting.

19. A fitting protector as claimed in claim 18, wherein the upper edge of the shell is cut to form two tongues that may be bent out of the plane of the shell to allow engagement thereto of a transformer or other component.

20. A fitting protector as claimed in claim 18, wherein pegs are removably
10 attached to the shell and the transformer or other component may be located on the pegs.

21. A fitting protector as claimed in claim 18, wherein prongs are attached to the shell and in normal use lie substantially parallel to and against the shell, but which may be selectively bent away therefrom to permit the support of a
15 transformer or other component.

22. A fitting protector as claimed in claim 1 and substantially as herein illustrated and described with reference to the accompanying drawings.

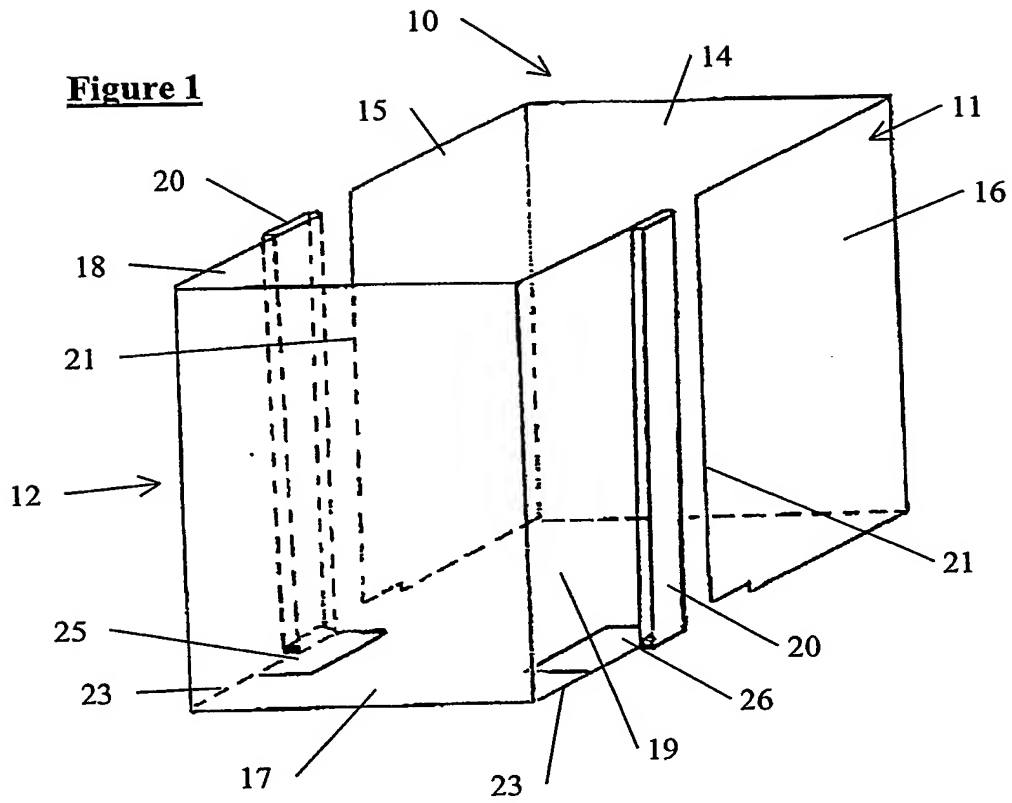
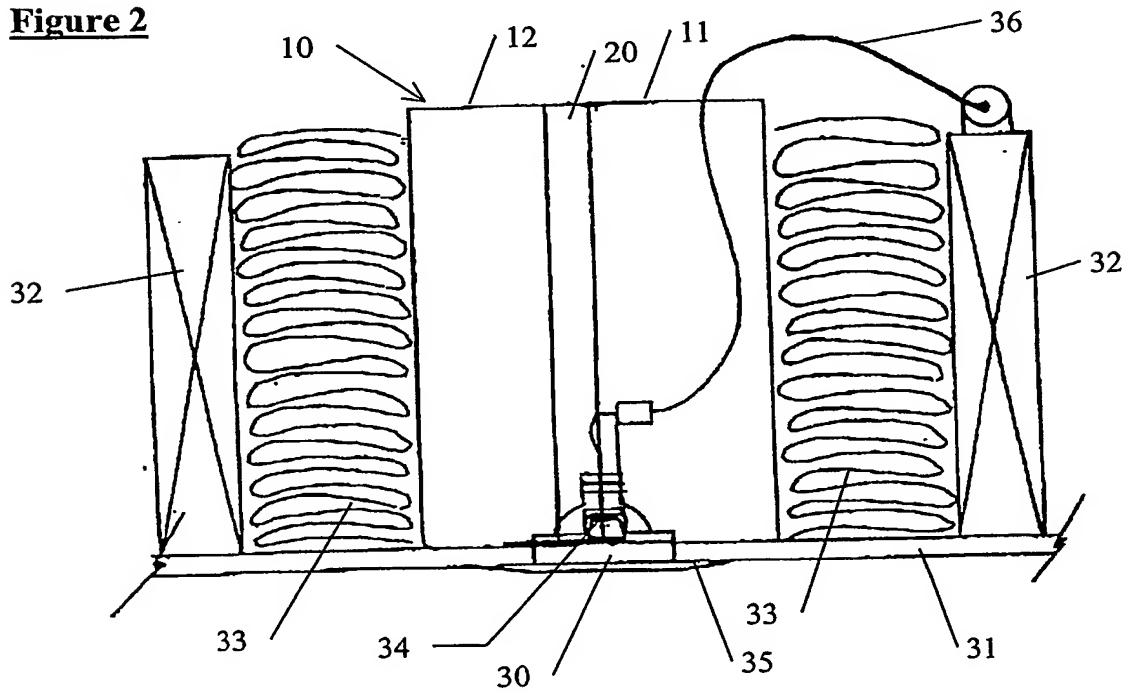
Figure 1**Figure 2**

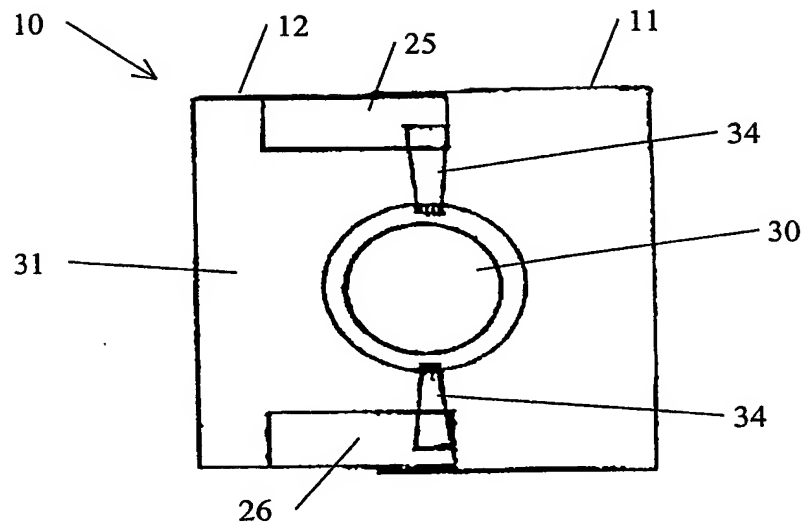
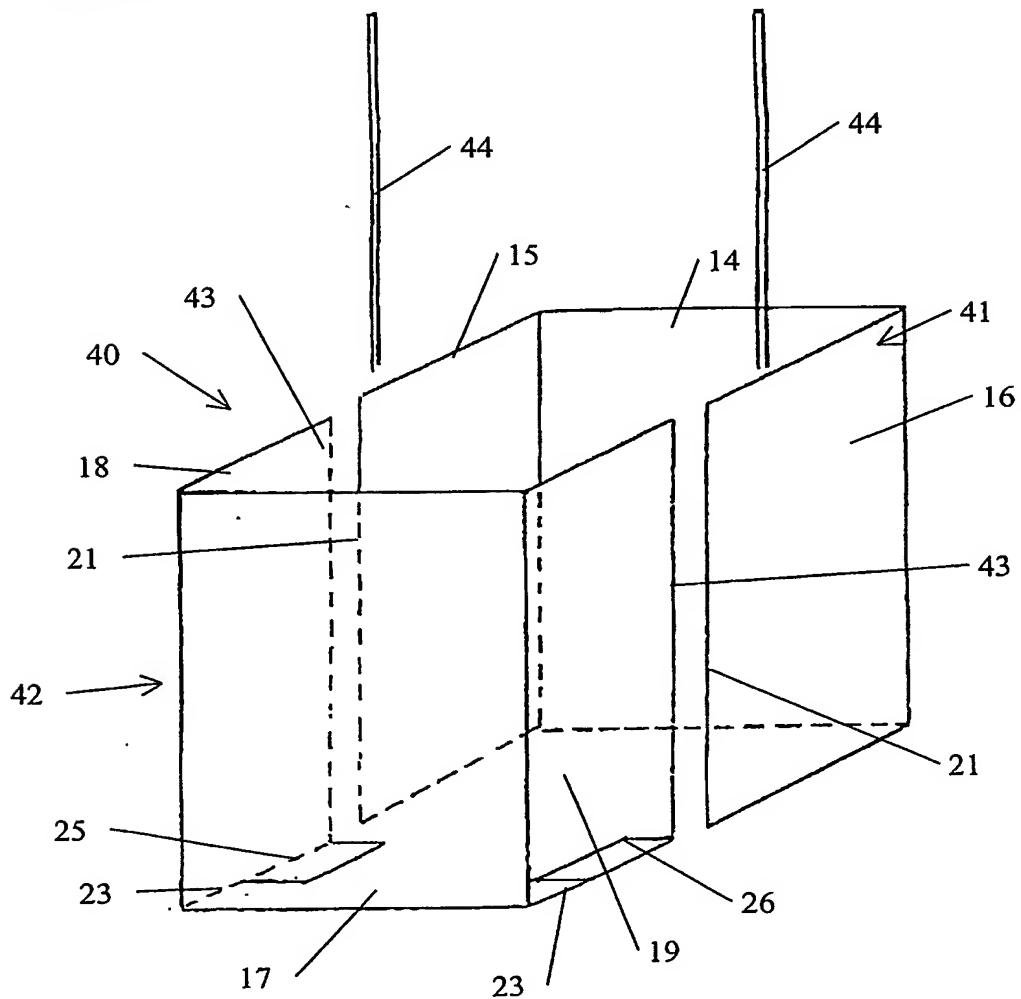
Figure 3**Figure 4**

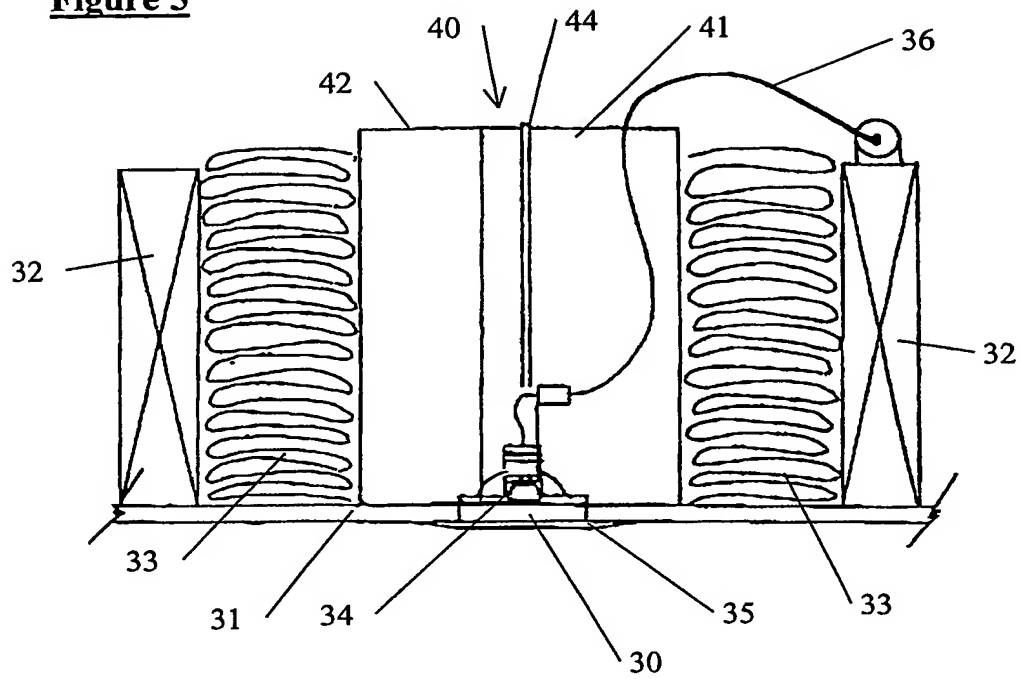
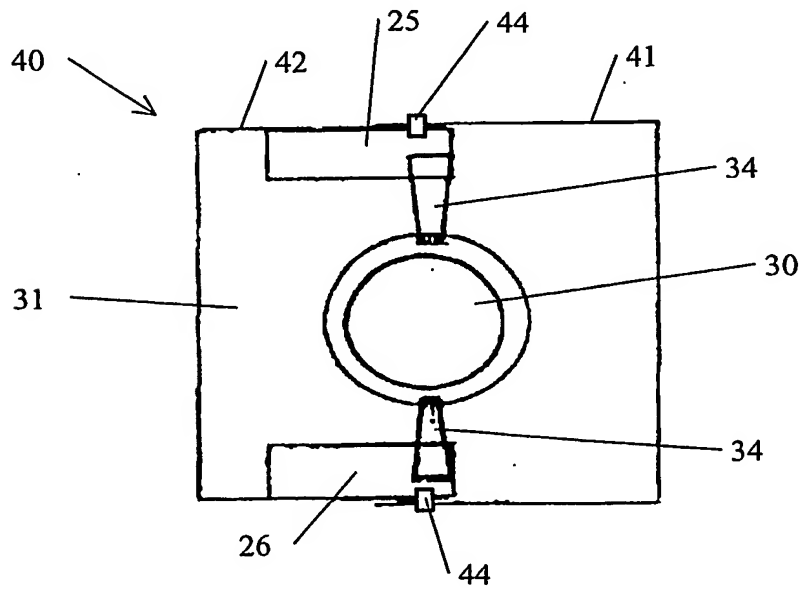
Figure 5**Figure 6**

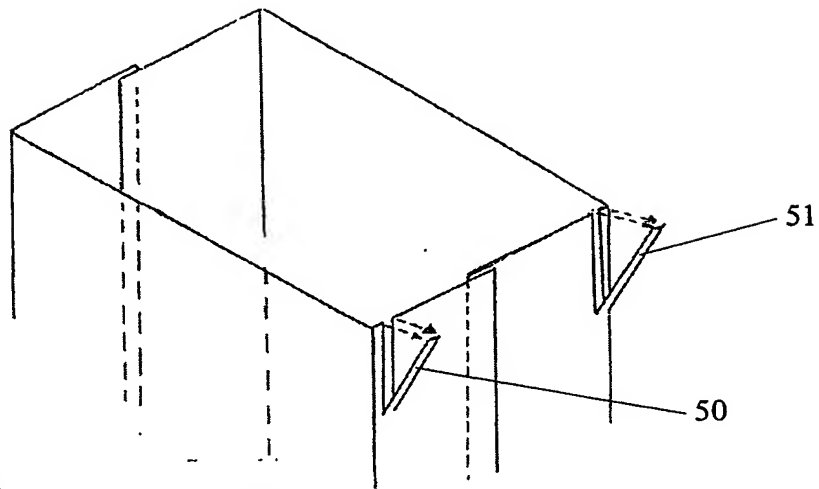
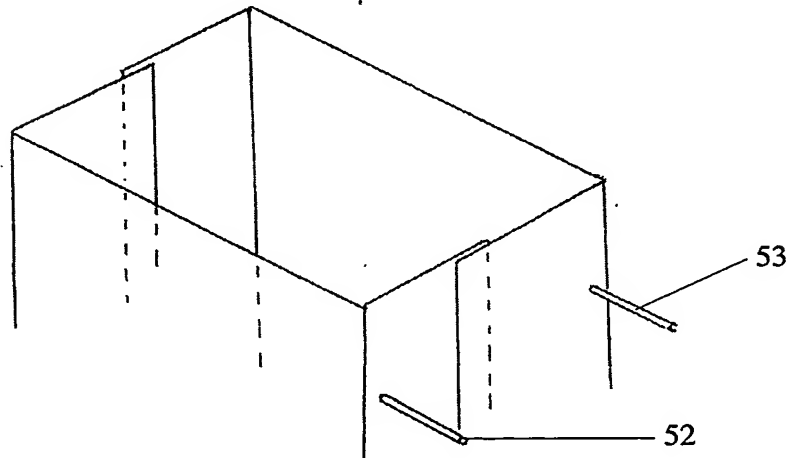
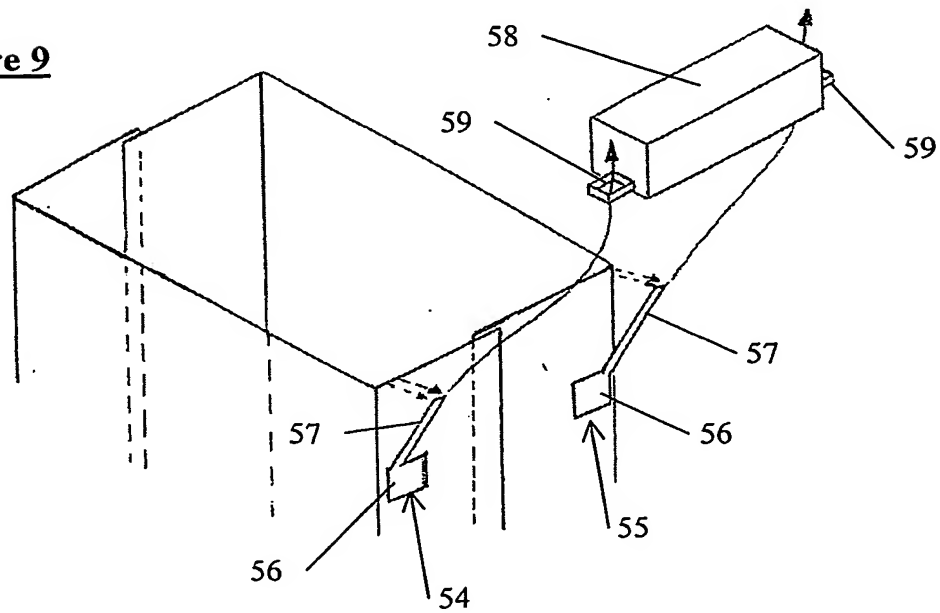
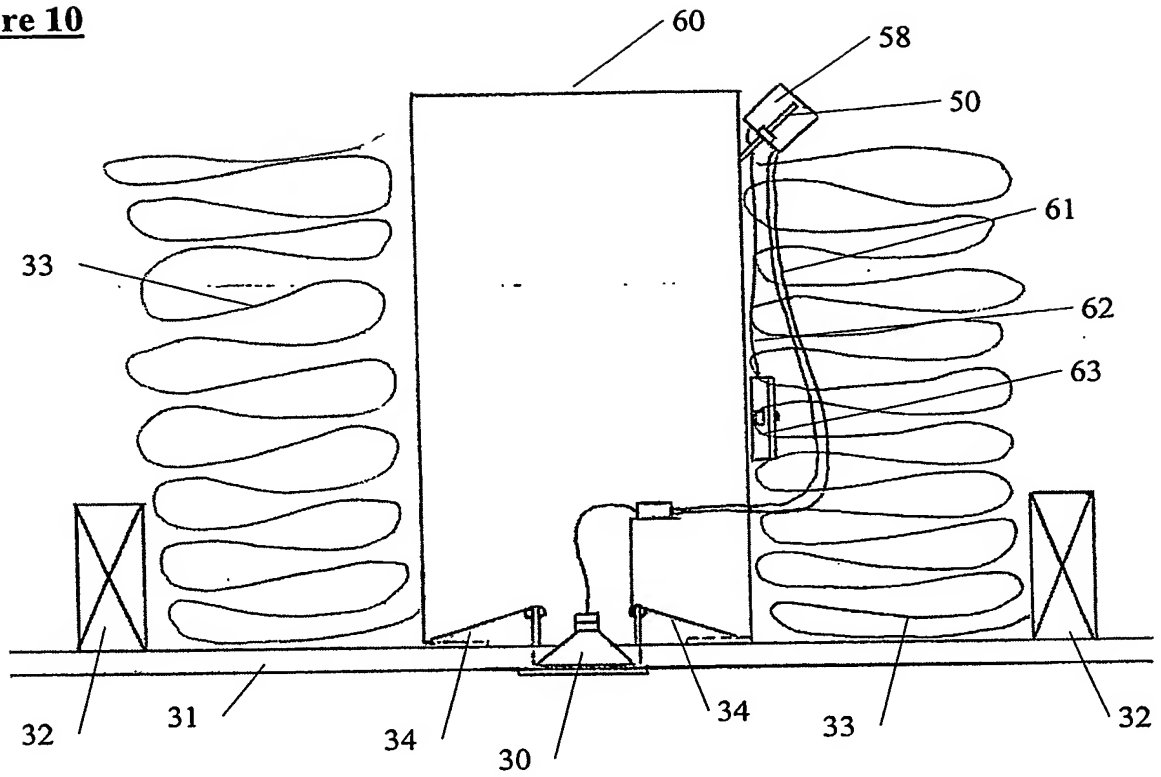
Figure 7**Figure 8****Figure 9**

Figure 10

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